

### Claims

1. (currently amended) A method ~~[[of]]~~ for producing heat energy, comprising ~~the steps of:~~  
providing a container for receiving an electrolyte composition, a cathode and an anode;  
forming an electrolyte composition comprising D<sub>2</sub>O and sulfuric acid;  
placing a sufficient amount of the electrolyte composition in the container to at least partially cover a platinum or titanium metal cathode ~~made from a metal selected from the group consisting of palladium, platinum and titanium~~ and to at least partially cover an inert anode situated inside the container;  
connecting the cathode and anode to a source of electricity; and  
applying a current density across the cathode and anode of at least 0.55A/cm<sup>2</sup>.
2. (canceled)
3. (currently amended) The method of claim 1 wherein, ~~the electrolyte~~ during the application of voltage, the electrolyte is held within a container and ~~wherein said the~~ container bounds a space above the electrolyte, ~~[[said]]~~ the space providing a region for ~~[[the]]~~ recombining ~~[[of]]~~ gases produced during the electrolysis.
4. (currently amended) The method of claim 1 wherein a catalyst is provided within ~~[[said]]~~ the region catalyzing the recombining of gases produced by the electrolysis.
5. (canceled).
6. (currently amended) The method according to claim ~~[[5]]~~ 1 wherein the size of the cathode is about 1 cm<sup>2</sup>.
7. (original) The method according to claim 1 wherein the cathode is made from titanium.

8. (original) The method according to claim 1 wherein the inert anode is a platinum anode.

9. (original) The method according to claim 1 wherein the electrolyte composition consists essentially of D<sub>2</sub>O and about 15% sulfuric acid by volume.

10. (currently amended) The method according to claim 9 wherein the cathode is ~~made from palladium or~~ a titanium metal cathode.

11. (currently amended) A method ~~[[of]]~~ for producing heat energy, comprising ~~the steps of:~~

providing a container for receiving an electrolyte composition, a cathode and an anode;  
forming an electrolyte composition comprising D<sub>2</sub>O and sulfuric acid;  
placing a sufficient amount of the electrolyte composition in a container to at least partially cover a titanium metal cathode ~~made from a metal selected from the group consisting of nonhydride forming metals~~ and to at least partially cover an inert anode situated inside the container;  
connecting ~~[[said]]~~ the cathode and anode to a source of electricity; and  
applying a voltage of about 3.5 volts across the cathode and anode.

12. (currently amended) A method ~~[[of]]~~ for producing heat energy, comprising ~~the steps of:~~

providing a container for receiving an electrolyte composition, a cathode and an anode;  
forming an electrolyte composition consisting essentially of D<sub>2</sub>O and 15% by volume sulfuric acid;  
placing a sufficient amount of the electrolyte composition in a container to at least partially cover a ~~palladium or~~ titanium cathode and an inert anode situated inside the container, wherein the container bounds a space above ~~[[said]]~~ the electrolyte composition;  
connecting ~~[[said]]~~ the cathode and anode to a source of electricity;  
applying a voltage across the cathode and anode; and

providing a catalyst within the space above the electrolyte composition to catalyze the recombination of gases produced by the electrolyte.